**K-5 Math Lesson Plan**

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| **Teacher: Aldous/Wells** | | | **Grade: 5** | | | **Date(s)**: August/September 2012 |
| **Unit Title:**  Unit 1 – Understand the Decimal Place Value System | | | | **Corresponding Unit Task:**  **“2012 Summer Olympics – Who Gets the Gold?”**  **(Teach Prior to task 3)** | | |
| **Essential Question(s):**  **How do I compare decimals to the thousandths?** | | | | | | |
| **Materials/Resources** | | | | **Essential Vocabulary** | | |
| **Teacher:**  **White board, markers, index cards** | | **Student:**  **Pencil, math journal** | | | **Thousands, hundreds, tens, ones, tenths, hundredths, thousandths, compare, <less than, greater than>, equal to=**  **Optional words: ascending order, descending order** | |
| **Learning Experience** | | | | | | |
| **8 Mathematical Practices:**  √ 1. Make sense of problems and persevere in solving them.  √ 2. Reason abstractly and quantitatively.  √ 3. Construct viable arguments and critique the reasoning of others.  √ 4. Model with mathematics.  5. Use appropriate tools strategically.  √ 6. Attend to precision.  √ 7. Look for and make use of structure.  √ 8. Look for and express regularity in repeated reasoning. | **Common Core State Standards:**  **5.NBT.3b**  **Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. (Correlates to NCSCOS Math Objective 1.01)** | | | | | |
| **I Can Statement(s):**   * I can use the symbol (=) when comparing numbers. * I can use the symbol (<) when comparing numbers. * I can use the symbol (>) when comparing numbers. | | | | | |
| **Activating Strategy/Hook:** (How will students become cognitively engaged and focused?)  To review place value and rounding from previous lessons.  Put the following on number on the board:  6 x 100,000 + 4 x 10,000 + 9 x 100 + 2 x 10 + 7 x 0.1 + 1 x 0.01 + 9x 0.001  What form is this number written in? expanded  What is this number in base-10 numerals form? 640,920.719  What other form can we write this number in? Number Name  Round this number to the nearest: ones? 640,921  Tenths? 640,920.7  Hundredths? 640,920.72  Draw a pictorial representation of 2.543 | | | | | |
| **Teacher Directed:**  Post the following problem:  -Santiago was able to finish the race in 3.56 minutes. Allen finished in 3.065 minutes. Who finished the race first? Allen  How do we know?  How can we compare decimals?  **Compare place values**  1. Line up the decimal points  2. Starting on the left, compare the digits in each place value  3. Continue comparing until the digits are different. The larger digit will be in the larger number.  Example: compare 4.671 and 4.85  4.671  4.85  The ones digits are the same. The tenths digits are different, 6 < 8. So 4.671 < 4.85  **Another way**  1. Line up the decimal points  2. Fill in zeros if a number does not include thousandths  3. Erase the decimals and compare the numbers like they are whole numbers  Example: compare 3.08 and 3.108  3.080 erase decimal - 3080  3.108 erase decimal – 3108  3108 is greater than 3080 so: 3.108 > 3.08  **With a number line.**  Draw a number line on the board from 0 to 1  Labeling these points: 0, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0  Label 0.2 as point A and 1.0 as point B  Compare point A to point B. Which is greater? 1.0  How can you write that 1.0 is greater than 0.2? 1.0 > 0.2  How does a number line help you see which number is greater?  **Putting in Order**  Introduce students to ascending and descending order. To help the students remember the definitions, tell them that **d**escending begins a **d**, like the work down. So **d**escending order has the numbers going **d**own.  Example  3.40  3.408  3.08  Put in ascending order. 3.08, 3.40, 3.408  Put in descending order. 3.408, 3.40, 3.08 | | | | | |
| **Guided Practice: (to be done in math journals/notebooks)**  Have the students copy the following numbers in their journals:  56.06  56.903  5.606  Remind them to:  1. line up the decimal points  2. Compare the digits in the greatest place  3. Continue comparing until the digits are different  Compare:  56.06 \_\_\_\_ 56.903 <  56.06 \_\_\_\_ 5.606 >  56.903 \_\_\_\_\_ 5.606 >  Put the three numbers in ascending order. 5.606, 56.06, 56.903  Students copy the following: (Remind them that changing the word or expanded form to standard will make them easier to compare)  Six and five hundredths \_\_\_\_\_\_\_ six and five thousandths >  Twenty-one and thirty-five hundredths \_\_\_\_\_\_\_\_\_ twenty-one and seven tenths <  Four and nine tenths \_\_\_\_\_\_\_ four and nine hundredths >  Fifteen and eight hundredths \_\_\_\_\_\_\_ fifteen and eighty thousandths =  10 + 3 + 0.9 \_\_\_\_\_\_\_\_\_\_\_\_\_ 10 + 3 + 0.09 >  20 + 9 + 0.8 \_\_\_\_\_\_\_\_\_ 20 + 0.9 + 0.08 >  *There is a disagreement among four of the words top swimmers. They all believe that they won the gold medal in the men’s’ 100 meter freestyle. The chart below shows the athlete’s swim times.*  *Athlete Completion Time in Seconds*  *Michael Phelps – USA 58.112*  *Ian Thorpe – AUS 58.121*  *Tomomi Morita – JPN 58.211*  *Stephen Perry – GRB 58.122*  List the completion times in descending order. 58.211, 58.122, 58.121, 58.112  Who won the race? Michael Phelps | | | | | |
| **Independent Practice:**  **To be completed in students journals or can be copied into a word document to save time or for collection**  Complete the chart with <, >, or =   |  |  |  | | --- | --- | --- | | Three and five hundredths | **<** | Three and five tenths | | Fourteen and fifty-six thousandths | **>** | Fourteen and thirty-five thousandths | | Twenty-four and seven tenths | > | Twenty-four and seven thousandths | | 20 + 4 = 0.09 | > | 20 + 0.4 + 0.09 | | 6 + 0.06 + 0.005 | < | 6 + 0.6 + 0.005 | | 500 + 40 + 8 + 0.9 | > | 500 + 4 + 0.8 + 0.009 |   **Who Won**   |  |  |  | | --- | --- | --- | | **Athlete** | **Meters Jumped** | **Finished** | | **Jones** | **3.78** | **4** | | **Miles** | **4.02** | **2** | | **Baxter** | **3.9** | **3** | | **Cleaver** | **4.1** | **1** |      |  |  |  | | --- | --- | --- | | **Athlete** | **Time in seconds** | **Finish** | | **Jones** | **32.85** | **4** | | **Miles** | **31.24** | **2** | | **Baxter** | **30.53** | **1** | | **Cleaver** | **32.76** | **3** | | | | | | |
| **Closing/Summarizing Strategy:**  **Ticket out the Door**   |  |  |  | | --- | --- | --- | | **1984 Women’s’ Gymnastics Results** | | | | **Gymnast** | **Country** | **Score** | | **Ecaterina Szabo** | **Romania** | **79.125 2** | | **Somana Paula** | **Romania** | **78.675 3** | | **Mary Lou Retton** | **USA** | **79.175 1** | | **Julianne McNamara** | **USA** | **78.400 4** |   **1. Write Simona Pavca’s score in Number Name form? seventy-eight and six hundred seventy-five thousandths**  **2. Which digit is in the hundredths place of each gymnast’s score? Szabo – 2, Paula – 7, Retten – 7, McNamara - 0**  **3. What is the score for Mary Lou Retten in expanded form? 70 + 9 + 0.1 +0.07 +0.005**  **4. List the scores in ascending order? See chart**  **5. Who won the gold? Mary Lou Retton** | | | | | |
| **Differentiation Strategies** | | | | | | |
| **Extension** | | | **Intervention** | | | **Language Development** |
| 2004 Horizontal Bar Competition of the 2004 Olympics  Gymnast Points Medal  Cassina – ITA 9.81 Gold  Hamm – USA 9.81 Silver  Yoneda – JAP 9.78 Bronze  Ask:  What do you notice about the data? Hamm and Cassina both earned 9.81 yet one of them earned a gold medal and one earned a silver  Explain to students that it is very rare that two gold medals are given in a single event. There must have been a way that the Olympic officials determined a winner. How do you think that they did it?  List ideas on the board  Gymnastics officials tried to break the tie by using the thousandths place | | | Decimal Distractions  The decimals below are the final distances (in meters) for the women’s long jump qualifying event for the American Olympic team. How would you represent each one of these decimals? With your group decide what each decimal would look like using the base ten blocks and record them. When you have finished, use your pictures to determine the largest and the smallest numbers. Put all the numbers in ascending order.  7.07  7.70  7.73  7.37 | | | Numberologists compare, contrast and classify numbers. Read the numbers in each row; circle the number that does not belong with the other two.  1. A 3.24 B 8.76 C 9.2  2. A 17.238 B 29.72 C 38.220  3. A 234 B 3.4 C 7.8  4. A 28.642 B 44.80 C 9.587  1C, 2B, 3A, 4B  Explain why you chose each answer. |
| **Assessment(s):**   * Collect student journals and check “Ticket out the Door” for correctness * Divide the students into groups. Give each group a set of 5 or 6 index cards, each with a different decimal number. Have each group put the numbers in descending order. Ascending order. Switch card sets with another group and repeat. | | | | | | |
| **Teacher Reflection:** (Next steps?)   * What went well? * Specific notes about students’ thinking * Student understandings/misconceptions * What do I need to reteach/review tomorrow or in the future? * New ideas or changes for next time | | | | | | |